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VERSATILE, HIGH PRECISION STEREO
POINT TRANSFER DEVICE
NOVEMBER 1963
PROGRESS REPORT #4
JOB #552

GENERAL

The work in this reporting period has been to complete design layouts and emphasize purchase of long lead time items throughout the instrument.

1. OBJECTIVE ASSEMBLY

Optical configuration has been arranged that provides a practical optical and mechanical layout. This design will allow all major subassemblies to be separately mounted to a single plate so that servicing and adjustments are simplified. In addition, the entire objective assembly optics can be easily removed from the viewer for laboratory alignment. Features, such as laser film marking, reticle, and objective lenses can be added or deleted relatively easily. Design layout should be completed in December.

2. EYEPIECE ASSEMBLY

Detailing is progressing and should be completed in December. No fundamental changes have been made, although there have been minor alterations for clearance, adjustments and machining.

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2. EYEPIECE ASSEMBLY (Cont.)

Eyepiece support linkeage has been designed and are awaiting final space requirements of cabinet and objective assemblies. The design features a dead weight counterbalance and worm gear angular adjustment, that should provide easy handling of eyepiece assembly.

Motion damping and locking are to be done by hydraulic cylinders.

3. FRAME ASSEMBLY

Pattern and casting have been ordered and machining and heat treatment sources have been located. Because of the many steps involved in processing this casting, close traffic control will be exercised to minimize lost time. Delivery of frame casting with completed machining will be in February, representing at least one month delay in equipment delivery.

4. X-Y CARRIAGE

Design of X carriage is firm but Y carriage is held up pending objective assembly design. Release for manufacture of Y carriage is expected in December. Design work nearly complete except for small changes for machining aids.

5. LEAD SCREW

Although screw and its mounting configuration are firm, order has been held up pending decision to use 2 1/2mm or 5mm lead. Screw drive will also be held up. Customer has been advised by [redacted] that delivery will be at least three months as well.

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6. SCAN DRIVE ASSEMBLY

Scan velocity adjustment circuits are being designed so that maximum velocity of 1"/second will always be attained on one channel, regardless of magnification setting of optics. This feature is thought to simplify oscillator design and give operator rapid steering control. A bypass will be required, however, to disregard zoom magnifier's factor on scan velocity. Study of slo-syn motor's resonances has not been completed. Two-speed transmission required for the scanning drive has been ordered and is expected here in January.

7. LIGHT TABLE AND FILM DRIVE

Final stages of design of light table are underway with detailing and release for manufacture completed for castings and other long lead time items. Cold cathode lamps and vacuum plates will be released for manufacture early in December. Vacuum holddown system design should be firm for manufacture in December. Devising a practical means to retain vacuum manifold is the principle problem being solved.

Film drives configuration is firm with many specially designed parts in manufacture. Balance of manufactured and purchased parts will be released in December.

The following are conclusions made at a meeting with customers personnel at [redacted] November 19, 1963. 25X1

A. Maximum film temperature is now defined as ambient + 30° F or 130° F maximum.

B. Design objective of equipment accuracy is .0001 inch/inch accumulating with travel.

C. Scan drive velocity in either axes, either channel, is to be automatically reduced as magnification is increased.

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D. Film loop takeup to have length of 19 feet as measured from center of format areas. Consideration will be made to speed-up film loop and threading velocity.

E. Maximum brightness at eyepiece is to be near as possible to 500 ft. lamberts with minimum color temperature of 3500°K for an adjustment range of 100% to 50%.

F. An elapsed time meter is to be installed on equipment.

G. 35mm film not to be used.

H. State field size and magnification expected. (See September-October Progress Report).

I. Blowing air under film acceptable if used. Function control to be located at control panel.

J. Include enhancer switch or control panel.

K. Cabinet configuration consisting of viewer cabinet to have writing top with hinge side panels where mobile control console will be placed. A larger rack will be located remotely, containing larger control and accessory items.

B. WORK TO BE COMPLETED DURING NEXT REPORTING PERIOD

A. Complete design configuration for objective assembly.

B. Complete detailing and release for manufacture, eyepiece assembly parts.

C. Follow and control processing of frame and carriage castings for minimum lo t time.

D. Complete carriage design and detailing, releasing all revisions for manufacture.

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E. Firm scanning drive mechanical and electrical design work. Order all long term purchased parts.

F. Complete vacuum film hold down scheme and order all purchased parts.